Claims

What is claimed is:

[c1] A method for seismic imaging of subsurface diffractors, comprising:

performing velocity analysis on a seismic time record section; and

depth migrating the time section for offsets exceeding one-half a distance between a seismic energy source and a seismic receiver most distant from the source during acquisition of seismic data used to generate the time record section.

[c2] The method of claim 1 wherein the depth migrating comprises Kirchoff migration.

[c3] The method of claim 2 wherein the depth migrating comprises determining a time gradient of the diffractors, and attenuating spatial aliasing of specular reflective events in the depth migrated time section using the time gradient.

[c4] A method for seismic imaging of subsurface diffractors, comprising:

deploying a seismic energy source at a selected position near the Earth's surface;

deploying a plurality of seismic receivers at selected positions along the Earth's surface;

actuating the source at selected times;

recording signals detected by the receivers;

performing velocity analysis on a seismic time record section made from the recorded signals; and

depth migrating the time section for offsets exceeding one-half a distance between the source and one of the receivers most distant from the source.

[c5] The method of claim 1 wherein the depth migrating comprises Kirchoff migration.

[c6] The method of claim 2 wherein the depth migrating comprises determining a time gradient of the diffractors, and attenuating spatial aliasing of specular reflective events in the depth migrated time section using the time gradient.

[c7] A computer program stored in a computer readable medium, the program having logic operable to cause a programmable computer to perform steps comprising:

performing velocity analysis on a seismic time record section; and

depth migrating the time section for offsets exceeding one-half a distance between a seismic energy source and a seismic receiver most distant from the source during acquisition of seismic data used to generate the time record section.

[c8] The computer program of claim 8 wherein the depth migrating comprises Kirchoff migration.

[c9] The computer program of claim 9 wherein the depth migrating comprises determining a time gradient of the diffractors, and attenuating spatial aliasing of specular reflective events in the depth migrated time section using the time gradient.